

**CLAIMS**

1. A planar fuel cell including an electrode-membrane-electrode assembly, wherein the membrane includes a fabric, the warp fabric of which are continuous fibers in an electrically insulating material and the weft fibers of which alternately are fibers in insulating material and fibers in electrically conducting material, so as to form insulating areas and conducting areas, respectively.

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2. The fuel cell according to claim 1, wherein the fibers in insulating material are in polymer or in inert glass.

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3. The fuel cell according to claim 1, wherein the fibers in electrically conducting material are carbon fibers or stainless steel fibers.

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4. A method for making a planar fuel cell, which comprises the following steps:

- cutting out, with the desired shape, a piece of material,

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- depositing a seal layer over the whole thickness of the periphery of this piece of material with a slight excess thickness,

- depositing a ion conductor in the whole thickness of this piece of material,

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- depositing anodes on a first surface of the thereby filled piece of material and cathodes on the other surface,

- depositing electron collectors at one of the two ends of the assembly of anodes and at the other end of the assembly of cathodes,

5 characterized in that the piece of material is a piece of fabric, the warp fibers of which are continuous fibers in electrically insulating material and the weft fibers of which are alternately fibers in insulating material and fibers in electrically conducting material to form insulating areas and conducting areas, respectively.

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5. The method according to claim 4, wherein insulating gaskets are deposited on either side of the conducting areas of the fabric.

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